

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

The successful installation of the 10kVA hybrid inverter system has proven to be a highly effective solution for addressing the energy challenges of the Institute's Central Administrative Building and four key departmental offices. The system demonstrated high performance in energy conversion, reliability, and seamless distribution. It significantly reduced dependence on the national grid and eliminated the need for generator use, thus improving operational efficiency, reducing running costs, and enhancing the working environment. This project also underscores the feasibility and benefits of renewable energy adoption in institutional settings.

5.2 RECOMMENDATIONS

The following recommendations will aid the advancement of the solar system design and make it usable anytime. They are;

a. System Expansion

The current system should be expanded to cover additional academic buildings and student facilities, taking advantage of its scalable design.

b. Regular Maintenance

Implement a strict maintenance schedule for cleaning solar panels, inspecting cables, and checking battery health to sustain efficiency.

c. Energy Audit and Load Management

Periodic energy audits should be conducted to reassess load requirements and adjust distribution to prevent overloading.

d. Staff Training and Awareness

Conduct routine training for administrative and technical staff to ensure proper system use, troubleshooting, and energy conservation practices.

e. Integration into Curriculum

The system should serve as a live educational tool for students in engineering and environmental science programs to enhance hands-on learning.